

REMARKS/ARGUMENTS

The current application is on appeal with the Examiner's Answer having been mailed April 29, 2010. However, in view of the newly cited Isao reference, Applicants believe further prosecution and amendment of the claims may be needed in view of the newly cited prior art. Accordingly, Applicants have requested that this application be withdrawn from appeal and, to facilitate the Examiner's consideration of these amendments, have concurrently filed a Request for Continued Examination (RCE).

Claims 1-16 stand rejected in the Examiner's Answer. Claims 1 and 9 have been cancelled without prejudice and claims 2, 10 and 15 amended. Therefore, claims 2-8 and 10-16 remain in this application.

In the above amendment, Applicants have cancelled claim 1 and amended claims 2 and 15 to incorporate the subject matter of claim 1 therein. Moreover, Applicants have specifically noted that the claimed "interrogation system" is an "interferometric" interrogation system in both independent claims 2 and 15.

The Examiner provides a new grounds of rejection of claims 1-10, 15 and 16 under 35 USC §102(e) as being anticipated by Knudsen (U.S. Patent 6,575,033) with "inherency explained by Isao et al (JP 2003-254724)." Clarification is respectfully requested as to whether the Examiner believes that Knudsen anticipates these claims under §102 (i.e., Knudsen teaches every claimed element and every claimed interrelationship between claimed elements) or whether the Examiner is relying upon the Isao reference to supply the missing disclosure from Knudsen and intends a rejection under 35 USC §103.

The Examiner admits on page 5 of the Examiner's Answer that Knudsen "does not state that the transmission cable fiber acts as a distributed sensor." This admission is very much

appreciated. It is noted that Knudsen does not teach any distributed fiber optic sensor and therefore cannot anticipate the independent claims.

The Examiner argues that the transmission cable in Knudsen will inherently act as a sensor because it will experience variations due to incident compression waves and suggests that this is evidenced by Isao. However, the mere existence of changes in optical fiber characteristics does not constitute “output of sensed data from said at least two fibre-optic point sensors and said distributed fibre-optic sensor.” In Isao, meaningful information (rather than possible changes in optical fiber characteristics) are provided by the optical time domain reflectometry (OTDR) and specific interrogation and detection modules therein (see references 6 and 7 of Figure 1 in Isao). Accordingly, the Examiner’s admission that Knudsen does not teach the claimed “distributed sensor” is appreciated. Even if the Examiner combines Isao in a rejection under 35 USC §103, it is doubtful that there is any support for an obviousness rejection.

The Isao reference employs OTDR or Brillouin optical fiber time domain analysis (BOTDA). The Knudsen reference is designed to detect very small perturbations and thus emphasis is placed on high sensitivity accelerometers (see column 7, lines 18-38). Isao, on the other hand, is designed to detect overall displacement and thus accelerometers would not be appropriate, and, instead, Isao teaches fiber-based strain gauges. However, those strain gauges have problems in the case of large strains and the use of OTDR along connecting fiber portions provides a solution to the problem. The OTDR sensing solution is not transferrable to or combinable with the system of Knudsen. Therefore, even if one of ordinary skill in the art would try to combine Knudsen and Isao, such combination would not be operable.

It is noted that Applicants have cancelled without prejudice independent claim 1 and amended claim 2 to include the limitations of claim 1 along with an additional limitation, i.e.,

that the interrogation system is an “interferometric interrogation system” (as previously noted in claim 9 which has now been cancelled without prejudice). In view of the above discussion, it is believed clear that there is no further basis for rejection of now independent claim 2 as being anticipated by the Knudsen and Isao references. Any further rejection thereunder is respectfully traversed.

Should the Examiner believe that independent claims 2 and 15 are now rejectable under 35 USC §103 over the Knudsen/Isao combination by itself or in combination with additional references, it should be noted that not only are the claimed subject matter missing from these prior art references, one of ordinary skill in the art would not even attempt to combine the two references. The Isao reference is related to measurement of displacement, while the Knudsen reference relates to vertical seismic profiling. The Isao reference provides a solution to the problem of possible fiber fracture to a large scale displacement, where that problem is not applicable to the Knudsen reference. No problem is identified in the Knudsen reference which would cause one of ordinary skill in the art to seek the solution of additionally using distributed sensing.

In the present invention, the distributed fiber optical sensor assists in providing a surveillance function, i.e., detecting the position of an unknown disturbance. In the Isao reference, the OTDR sensing function provides additional capability in the case of large strains. No such corresponding problem exists in Knudsen and therefore there would be no motivation to look to Knudsen for a solution to this problem.

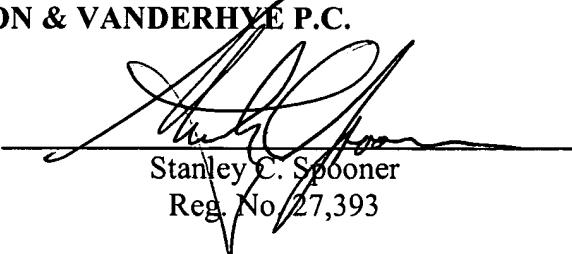
In view of the above, it is clear that the Examiner has simply failed to meet his obligation of establishing some reason or motivation for combining portions of the two references. The

Examiner's attention is directed to the relatively recent Supreme Court decision in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (April 2007).

Having responded to the rejections set out in the Examiner's Answer and the newly applied Isao reference, it is submitted that remaining claims 2-8 and 10-16 are in condition for allowance and notice to that effect is respectfully requested. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of these claims, he is respectfully requested to contact Applicants' undersigned representative.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 

Stanley C. Spooner
Reg. No. 27,393

SCS:kmm
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100